



## SUBSTITUTE SPECIFICATION

### BACK CARTRIDGE COUPLING STRUCTURE

#### BACKGROUND OF THE INVENTION

##### Field of Invention

5        The present invention relates to a coupling back-cartridge structure, which is used for coupling a body and a back cartridge in athe handheld data processor, and more particularly to a back-cartridge-coupling structure that prevents ~~allows~~the body and the back cartridge of the handheld data processor from~~to cause no~~ scratch when they~~both~~ two are coupled ~~with each other~~together.

##### 10      Related Art

At present, athe back cartridge is used to provide the handheld data processor a sufficient electric power, it can be furnished with a backup battery or other devices that can expand the function of the handheld data processor (such as CF or ,SD card receptacle module or wireless communication module). But, in conventional art, the  
15 coupling between the current back cartridge and the body of the handheld data processor, such as Visor series products produced by Handspring, is coupl~~pro~~cessed by means of anthe upward-faced connector slot disposed in the body and athe 90° projected, downward-faced connector disposed on the back cartridge. The back cartridge must be slid face-to-face ~~relative~~ to the body in order to let the connector slot and connector to be  
20 joined when they~~both~~ are coupled. Therefore, the surface of the back cartridge and the body~~both~~ will be scratched over a long period of time. Also, a larger gap must be maintained between ~~both the back cartridge and the body~~ so that they can be slid smoothly. ~~As a~~in a consequence, the back cartridge and the body may not be coupled tightly~~shakes easily after the coupling~~.

25        Therefore, it is important ~~for us~~ to invent a back cartridge coupling structure in order to prevent~~let~~ the surfaces of the body of the handheld data processor and back cartridge from~~not to~~ scratch each other when ~~both~~they are coupled together.

## SUMMARY OF THE INVENTION

The object of the invention is to provide a ~~back-cartridge-coupling~~ structure, ~~preventing~~enabling the surfaces of a back cartridge and body ~~from not to~~ scratch each other through ~~the-coupling~~ the body and the back cartridge in a vertical direction.

5        ~~T~~Accordingly, the body of a handheld data processor comprises a connector slot disposed at ~~its~~the coupling face thereof. A back cartridge comprises a connector, corresponding to the connector slot, disposed on the coupling face thereof the back cartridge. The coupling structure comprises a seizing element and outer lining; The seizing element is disposed on the coupling surface of the body, and the outer lining, 10 corresponding to the seizing element, is disposed at one side~~end~~ of the back cartridge and can be moved ~~in parallel relative to~~ the coupling face of the back cartridge. To couple the body and the cartridge, the two coupling surfaces need to be pressed toward each other in vertical direction so that the connector can be inserted into the connector slot~~First, press the two coupling faces of the body and back cartridge toward each other face to face in vertical direction when both want to be coupled together so as to let the~~ 15 ~~connector be inserted into the connector slot (it also means that the back cartridge is placed on the body). Thereafter, T~~he outer lining is then slid ~~in parallel relative to~~ the coupling face of the back cartridge. T~~A~~nd, the body and back cartridge are coupled together when the back cartridge is stuck by the seizing element.

20        ~~Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those~~ 25 ~~skilled in the art from this detailed description.~~

## BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more readily apparent ~~fully understood~~ from the detailed description of the exemplary embodiments that follows, with reference to the attached drawings in which~~given hereinbelow illustration only, and thus are not~~

~~limitative of the present invention, and wherein:~~

FIG. 1 is an explosive view of a coupling structure according to an exemplary preferred embodiment of the present invention;

5 FIG. 2 is a cross sectional view illustrating a coupling structure according to an preferred exemplary embodiment of the present invention; ~~showing a sliding clasp hooks up a seizing element when a body and back cartridge are coupled together;~~

FIGS. 3A, 3B and 3C are schematic views illustrating a coupling structure according to an exemplary embodiment of the present invention ~~of a preferred embodiment, showing coupling motions of a body and back cartridge; and~~

10 FIGS. 4A-4B ~~and 5 is are~~ is are schematic views of a coupling structure according to another embodiment of the present invention; ~~showing another type of seizing element.~~

## **DETAILED DESCRIPTION OF THE INVENTION**

~~Please referring to FIG. 1,~~ a back cartridge coupling structure 30 according to the invention is used in a handheld data processor 1, which comprises a body 10 and a back  
15 cartridge 20.

The body 10 comprises a coupling surface 11 and a connector slot 12; the connector slot 12 is disposed in the coupling surface 11.

The back cartridge 20 comprises a coupling face 21 and a connector 22; the connector 22, corresponding to the connector slot 12 of the body, is disposed on the  
20 coupling face 21. The connector 22 and the connector slot 12 can be jointed together when the body 10 is coupled to the back cartridge 20.

The coupling structure 30 comprises a seizing element 31, an outer lining 32, sliding groove 33 and detaining holes 34. The seizing element 31 is disposed on the coupling surface 11 of the body 10 and is parallel to the ~~side~~ edge of the coupling  
25 surface 11 of the body 10. The outer lining 32, corresponding to the seizing element 31, is disposed at one side end of the back cartridge 20 and comprises a projecting

column 321, buttons 322 and a sliding clasp 323. The sliding clasp 323 is disposed corresponding to one end of the seizing element 31 in order to hook up this end of seizing element 31 to prevent the back cartridge from falling down in the direction opposite to this end after the body 10 is coupled with the back cartridge 20, as FIG. 2  
5 shown. The sliding groove 33 corresponding to the projecting column 321 is disposed in the back cartridge 20 so as to allow the projecting column 321 to be slid therein the groove 33. Therefore, the outer lining 32 can be slid along the edge of ~~in parallel relative~~ to the coupling face 21 of the back cartridge 20. The detaining holes 34 corresponding to the button 322 ~~s are~~ is disposed in the body 10 so that in order to get the buttons 322  
10 can fit into the detaining holes 34 ~~stuck therein~~ when the body 10 is coupled to the back cartridge 20.

To couple the body 10 and the back cartridge 20, ~~As FIG. 3A, 3B and 3C shown,~~  
first, ~~press~~ the two coupling surfaces 11, 21 of the body 10 and the back cartridge 20  
need to be pressed toward each other ~~face to face~~ in vertical direction ~~when both are~~  
15 ~~coupled together so as to let~~ so that the connector 22 can be inserted into the connector slot 12 (it also means that the back cartridge 20 is placed on the body 10), as shown in FIG. 3A. ~~Thereafter,~~ the outer lining 32 is then slid ~~in parallel relative to~~ the coupling face 21 of the back cartridge 20 (the projecting column 321 is slid along the sliding groove 33). ~~And,~~ the outer lining 32 is stuck by the seizing element 31 when it is  
20 slid, thereby ~~so as to~~ increase the tightness of the coupling of the body 10 and back cartridge 20. ~~The sliding clasp 323 hooks up one end of the seizing element 31. The buttons 322 fit into~~ ~~is detained in~~ the detaining holes 34, thereby ~~so as to~~ couple the body 10 and back cartridge 20. ~~By the way, The arrangement/disposition of the buttons 322 and detaining holes 34 can~~ increase the tightness of the coupling ~~let both be coupled~~  
25 tightly.

Furthermore, referring to FIGS. 4 - 4B ~~and 5~~, the end of the seizing element 31 that first comes into contacts with the outer lining 32 ~~first is thinner than the,~~ and other end, ~~of the seizing element 31 that contacts with the outer lining 32 last is thicker (it is also the time that the coupling of the body 10 and back cartridge 20 is completed),~~ and such  
30 kind of the design can be used in the profile of the seizing element 31 whatever it is in a

direction parallel or perpendicular to the coupling face 11 so as to increase the tightness of two sides of or a direction perpendicular to the body 10 and back cartridge 20.

~~Of course,~~ the coupling face 11 does not have to be unnecessary at the back-face of the body 10. It ~~may also~~ be at the front ~~surface thereof~~ or other positions.

5        The back cartridge coupling structure according to the present invention may prevent ~~doesn't cause~~ the surfaces of the back cartridge and body from to being scratched, because the back cartridge is pressed toward the body face to face in vertical direction while coupling. Furthermore, it is convenient to use only the outer lining according to the present invention to couple the back cartridge and body tightly.

10        The exemplary embodiments of the present invention have been being thus described in an illustrative manner. Many modifications and variations of the exemplary embodiments of the present invention are possible in light of the above teachings. Therefore, it is to be understood that within the scope of the appended claims, the exemplary embodiments of the present invention may be practiced otherwise  
15 than as specifically described above, it will be obvious that the same may be varied in many ways. ~~Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.~~

## ABSTRACT OF THE DISCLOSURE

A ~~back-cartridge-coupling~~ structure is for coupling a body and a back cartridge~~used~~ in a handheld data processor comprising ~~a body and a back cartridge~~. A connector slot disposed at the coupling face of the body, ~~corresponds to~~ a connector disposed on the coupling face of the back cartridge. ~~The coupling structure comprises~~ a seizing element disposed on the coupling face of the body, and an outer lining, corresponding to the seizing element and disposed at one end of the back cartridge, wherein the outer lining can be moved ~~in parallel relative to~~ the coupling face of the back cartridge. Pressing the two coupling faces toward each other face to face inserts the connector into the connector slot and sliding the outer lining relative to the coupling face of the back cartridge couples the body and the back cartridge together with the back cartridge sticking by the seizing element. Thereby, the both surfaces will not be scratched.